

What is claimed is:

1. An aqueous dispersion with a pH of from 2 to 7, comprising
  - (A) at least one swellable polymer or oligomer containing anionic and/or potentially anionic and/or nonionic hydrophilic functional groups,
  - (B) surface-modified, cationically stabilized, inorganic nanoparticles of at least one kind, and
  - (C) at least one amphiphile.
2. The aqueous dispersion of claim 1, with a solids content of up to 60% by weight, based on its total amount.
3. The aqueous dispersion of claim 1 or 2, containing, based on the sum (A) + (B) + (C),
  - from 1 to 30% by weight (A),
  - from 60 to 98% by weight (B), and
  - from 1 to 10% by weight (C).
4. The aqueous dispersion of any of claims 1 to 3, wherein the polymers and oligomers (A) are selected from the group consisting of polymers and oligomers which contain anionic and/or potentially anionic functional groups and have a pH of from 2 to 7 and an electrophoretic mobility  $\leq -0.5$  ( $\mu\text{m/s}$ )/(V/cm).
5. The aqueous dispersion of claim 4, wherein the polymers and oligomers (A) at a pH of from 2 to 7 have an electrophoretic mobility  $\leq -2.0$  ( $\mu\text{m/s}$ )/(V/cm).
6. The aqueous dispersion of any of claims 1 to 5, wherein the polymers and oligomers (A) are selected from the group of copolymers obtainable by two-stage or multistage controlled free-radical copolymerization in an aqueous or an organic medium where
  - (1) in a first stage
    - (a) at least one olefinically unsaturated monomer, and
    - (b) at least one non-(a) olefinically unsaturated monomer of the general formula (I)



in which the radicals  $R^1$ ,  $R^2$ ,  $R^3$ , and  $R^4$  each independently of one another are hydrogen atoms or substituted or unsubstituted alkyl, cycloalkyl, alkylcycloalkyl, cycloalkylalkyl, aryl, alkylaryl, cycloalkylaryl, arylalkyl or arylcycloalkyl radicals, with the proviso that at least two of the variables  $R^1$ ,  $R^2$ ,  $R^3$ , and  $R^4$  are substituted or unsubstituted aryl, arylalkyl or arylcycloalkyl radicals, especially substituted or unsubstituted aryl radicals;

are copolymerized and then

- (2) in a second stage at least one further monomer (a) is (co)polymerized in the presence of the copolymer formed in the first stage, following the addition of small amounts, or without the addition, of free-radical initiators.
7. The aqueous dispersion of claim 6, wherein the copolymers (A) are preparable by reacting in a first stage (1) at least one monomer (b) with at least one monomer (a) containing at least one anionic and/or potentially anionic functional group to give a copolymer.
  8. The aqueous dispersion of claim 6 or 7, wherein the copolymers (A) are preparable by reacting in a first stage (1) at least one monomer (b) with at least one monomer (a) containing at least one nonionic hydrophilic functional group to give a copolymer.
  9. The aqueous dispersion of any of claims 6 to 8, wherein the copolymers (A) are preparable by reacting in at least one further stage (2) the copolymer resulting in stage (1) with at least one monomer (a) which contains no anionic and/or potentially anionic and/or nonionic hydrophilic functional groups.
  10. The aqueous dispersion of any of claims 1 to 9, wherein the potentially anionic functional groups and the anionic functional groups are selected from the group consisting of carboxylic, sulfonic and phosphonic acid groups, acidic sulfuric and phosphoric ester groups, and carboxylate, sulfonate, phosphonate, sulfate ester, and phosphate ester groups.

11. The aqueous dispersion of any of claims 1 to 10, wherein the nonionic hydrophilic functional groups are polyethylene oxide groups.
12. The aqueous dispersion of any of claims 6 to 11, wherein the copolymers (A) are selected from the group consisting of copolymers which can be prepared in an aqueous medium.
13. The aqueous dispersion of claim 12, wherein the copolymers (A) are preparable by
  - (1) in a first stage copolymerizing
    - (a) at least one olefinically unsaturated monomer containing at least one anionic and/or potentially anionic and/or nonionic hydrophilic functional group and
    - (b) at least one monomer different than the olefinically unsaturated monomer (a)in the aqueous medium and then
  - (2) immediately thereafter in at least one further stage subjecting at least one further monomer (a), different than the monomer (a) of stage (1), to block copolymerization with the copolymer formed in stage (1),the aqueous medium used in stage (1) forming at least the majority of the aqueous medium in which the copolymer is present in dispersion.
14. The aqueous dispersion of any of claims 1 to 13, wherein the inorganic nanoparticles (B) are selected from the group consisting of main group and transition group metals and their compounds.
15. The aqueous dispersion of claim 14, wherein the main group and transition group metals are selected from the metals of main groups three to five, transition groups three to six and also one and two of the periodic system of the elements, and the lanthanides.
16. The aqueous dispersion of claim 15, wherein the metals are selected from the group consisting of boron, aluminum, gallium, silicon, germanium, tin, arsenic, antimony, silver, zinc, titanium, zirconium, hafnium, vanadium, niobium, tantalum, molybdenum, tungsten, and cerium.

17. The aqueous dispersion of any of claims 14 to 16, wherein the compounds of the metals are oxides, oxide hydrates, sulfates or phosphates.
18. The aqueous dispersion of claim 16 or 17, wherein the metals and their compounds are selected from the group consisting of silver, silicon dioxide, aluminum oxide, aluminum oxide hydrate, titanium dioxide, zirconium oxide, and cerium oxide.

19. The aqueous dispersion of any of claims 1 to 18, wherein the nanoparticles (B) are modified with at least one compound of the general formula II:



in which the indices and variables have the following meanings:

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|---------|---|
| S       | is a reactive functional group;                                   |
| L       | is an at least divalent organic linking group;                    |
| H       | is a hydrolyzable monovalent group or a hydrolyzable atom;        |
| M       | is a divalent to hexavalent main group or transition group metal; |
| R       | is a monovalent organic radical;                                  |
| o       | is an integer from 1 to 5;  |
| m+n+p   | is an integer from 2 to 6;  |
| p       | is an integer from 1 to 6;  |
| m and n | are zero or an integer from 1 to 5.                               |

20. The aqueous dispersion of claim 19, wherein the reactive functional group S is selected from the group consisting of (S1) reactive functional groups which contain at least one bond which can be activated with actinic radiation and (S2) reactive functional groups which undergo reactions with groups of their own kind ("with themselves") and/or with complementary reactive functional groups.
21. The aqueous dispersion of claim 20, wherein M is aluminum or silicon.
22. The aqueous dispersion of any of claims 1 to 21, wherein the amphiphiles (C) are selected from the group consisting of monoalcohols and aliphatic polyols.

23. The aqueous dispersion of claim 22, wherein the monoalcohols (C) are selected from the group consisting of monoalcohols having from 3 to 6 carbon atoms in the molecule and the aliphatic polyols (C) are selected from the group consisting of diols having from 3 to 12 carbon atoms in the molecule.
24. The use of the aqueous dispersion of any of claims 1 to 23 for painting or coating motor vehicle bodies and parts thereof, the interior and exterior of motor vehicles, the interior and exterior of buildings, doors, windows, and furniture, in industrial coating for the coating of plastics parts, especially transparent plastics parts, small parts, coils, containers, electrical components, and white goods, and also for the coating of hollow glassware.
25. The use of the aqueous dispersion of any of claims 1 to 23 for producing moldings and self-supporting films.